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Conference Abstract

Ecuadorian Red Lists and the IUCN Red List: A Disconnect

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Abstract

Up-to-date and globally available information about the conservation status of biodiversity is of paramount importance, given the accelerating global biodiversity loss. Governments rely on this information for policies on conservation and sustainable use of biodiversity. Ecuador, a neotropical biodiversity hotspot, harbors a significant number of endemic plant, animal, and fungal species and several of these groups have been evaluated in Ecuadorian non-IUCN Red Lists. The IUCN Red List of Threatened Species (IUCN 2024)—which is necessarily incomplete—could be improved with these works. See below for discussions and references for each group. (See also Suppl. material 1 for collaborating institutions and their acronyms)

Plants: Ecuador has ca. 18,800 vascular plant species (Ulloa et al. 2018). Ecuador's Red List of Plant Endemics (Leon-Yanez et al. 2011) was an effort led by Catholic University's

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herbarium with the participation of 80 experts from national and international institutions. The work revealed 78% of the 4,500 endemic plant species as threatened, but the IUCN Red List indicates 73% as such.

Fungi: There is no known catalog of native Ecuadorian fungal taxa. Laessoe and Petersen (2008) estimate 100,000 fungi species for Ecuador. Several Ecuadorian species are included in The Global Fungal Red List Initiative (Mueller et al. 2024) and only three are included in the IUCN Red List.

Insects: No catalog of native Ecuadorian insects, nor their conservation status are available. An updated list of Ecuadorian type specimens (Salazar et al. 2023) lists the number of species of the four most diverse insects groups for Ecuador: Coleoptera (6,370), Lepidoptera (6,278), Diptera (2,895), and Hymenoptera (2,467).

Fishes: Ecuador has 836 species including 92 (11%) endemics (Barriga 2012). 35% of fresh water fish species are considered threatened in Ecuador; 21 experts collaborated in this work (Aguirre et al. 2021). The IUCN Red List considers only 5% as threatened.

Amphibia: A recent Ecuadorian Red List assessment found 635 species of native amphibians in Ecuador, 53% of which are categorized as threatened; 33 experts collaborated with the assessments (Ortega et al. 2021). 43% of Ecuadorian taxa are threatened according to the IUCN Red List.

Reptiles: Ecuador has 401 reptile species, 27% of them are threatened; 15 collaborators participated in the report (Carrillo et al. 2005). In the IUCN Red List, 26% are threatened.

Birds: There are 1,582 native species in Ecuador with 39 (2.5 %) endemic (Remsen et al. 2024). The last Ecuadorian non-IUCN Red List, prepared by 77 collaborators from three institutions (Freile et al. 2019) revealed 10% of the taxa as threatened. The IUCN Red List indicates only 5% as threatened.

Mammals: There are 471 native species, including 62 (13%) endemics (Tirira et al. 2024). The latest Ecuadorian non IUCN-Red List assessment, evaluated by 124 collaborators from at least three museums, mentions that 29% are threatened (Tirira 2021). The IUCN Red List indicates only 12% as such.

There is an urgent need to create an efficient workflow for conservation assessments made by local taxonomists, including training in the IUCN Red List process (IUCN 2016). With these actions, large disparities, as those observed in fishes, amphibians and mammals, could be fixed.

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conservation, endemics

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Conflicts of interest

The authors have declared that no competing interests exist.

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Supplementary material

Suppl. material 1: Ecuadorian biodiversity collections doi

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